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ABSTRACT

Preschool children's responses to "wh-questions" (those including the concepts who, what, where, when, how, and why) were studied in order to determine the influence of socioeconomic status (SES) on frequency of correct and incorrect answers. Investigation focused on three questions: (1) When a response to a wh-question is incorrect, with which other wh-word is it confused? (2) Are differences in response patterns correlated with SES? and (3) Are there developmental differences between SES groups with regard to correct responses? Sixty middle-SES and 60 low-SES children -- divided by age into groups of 20, each containing an equal number of boys and girls -- served as subjects. Thirty questions were constructed as stimuli, five for each of the six wh-words. Each of 15 black and white line drawings depicting adults, children, animals, and common objects in various situations was designed to elicit the answer to 2 of the 30 questions. Since memory was not being tested, questions were repeated upon request; each subject was tested individually for approximately 20 minutes. Results are discussed. (Author/RH)

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Qualitative Differences in Preschool Children's Responses to Questions: Implications for Social Class and Developmental Differences

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Qualitative Differences in Preschool Children's Responses to Questions: Implications for Social Class and Developmental Differences

One of the standard tools used by all teachers in the classroom is questions. Teachers have encouraged children, if not trained them, how to formulate and ask questions in order to find out information. Teachers have also asked questions in order to determine what children have learned. Wh-questions (*who, what, where, when, how, why*) have been found especially useful to this end. The assumption has always been, until recently, that children come to school equipped with the knowledge needed to understand and express the linguistic constructs appropriate for comprehending and answering these types of wh-questions.

If a child answered a question incorrectly or failed to respond at all, the assumption was that the child did not have the information requested. In a recent study (Gullo, 1981), it was shown that low socioeconomic (SES) preschool children are at a distinct disadvantage as compared to middle SES children when asked a wh-question. Gullo showed that the comprehension of wh-words whose referents are abstract (*why, when, how*) develop later in low SES children. These differences were due primarily to SES differences in language use. Therefore, the low SES child's failure to respond correctly or at all to a wh-question containing *why, when,* or *how* may indicate that the child does not understand what information is requested by those particular wh-words and not that the child does not have the information requested.

Another assumption relative to answering wh-questions has always been the following: If the child responds to a wh-question, even with minimal accuracy, the question was comprehended, both the wh-word as well as the informational component of the question. For example, if you ask the child, "When do you want

to go out to play?" and the child's response is, "Now," it is assumed that the child wants to go out to play at this very minute. It has recently been suggested that a response such as "now" to a question of this nature may simply be a ritualistic response to "when," indicating some understanding of the expected response to a "when" question. In earlier studies of wh-question comprehension, ritualistic responses such as this were scored as a correct response in that they were categorically correct and indicated understanding of the wh-word (Gullo, 1981; Tyack & Ingram, 1977).

In studying children's responses to wh-questions, Cairns and Hsu (1978) found that for *why*, *when*, and *how* questions, a simple count of the number of correct responses does not adequately reflect the child's performance. They found that among the correct and incorrect responses, there are degrees of correctness and incorrectness which could be categorized into four developmentally sequenced response types: (1) totally uncomprehending or "I don't know" response; (2) a response indicating some understanding but a failure to form more than a minimal, fixed, or ritualized response; (3) a response indicating understanding but response is slightly semantically or syntactically incorrect; and (4) a completely correct, contextually accurate response.

In light of the above research findings, the following questions were posed regarding SES differences in answering wh-questions: (1) When a response to a wh-question is incorrect, with which other wh-word is it confused? (2) Is there an SES difference in response patterns of incorrect answers to questions? and (3) Are there developmental differences in response types for correct responses between SES groups?

This study also expanded Cairns and Hsu's category system to include the *where* question.

Method

Subjects

One hundred and twenty white, native English-speaking preschool children from two middle-sized midwestern cities served as subjects. The 60 middle SES subjects were from university and privately run preschools, while the 60 low SES subjects were from the local Head Start program. The children were divided into three age groups with 20 subjects each: I 3;6-3;11, II 4;0-4;7, III 4;8-5;2. Each group contained 10 boys and 10 girls.

Questions

Thirty questions were constructed as stimuli, five for each of the six wh-word types (*who, what, where, when, how, why*). To control for syntactic complexity, all of the wh-words were placed in the following syntactic frame: "Wh-word + is + the + noun + verb + ing?" Table 1 presents the 30 questions used as stimuli in this study.

Insert Table 1 about here

Pictures

Fifteen black and white line drawings were designed as stimuli to show adults, children, animals, and common objects in various situations. The pictures were designed to control for aspects such as mode of presentation, physical and color characteristics of the illustrations, figure-ground relationships between possible answers and extraneous information, and level of information of the pictorial unit.

Procedure

Each subject was tested individually in approximately 20 minutes. Each picture was designed such that it provided the answer to two of the 30 questions. During the presentation, the questions were repeated upon request since memory was not being tested.

Each child's response to the questions were scored as correct or incorrect. In order to examine the response patterns of incorrect answers between SES groups, a confusion matrix was constructed. That is, when the response was incorrect, as what other wh-word was the question interpreted? In order to examine qualitative differences between SES groups for correct responses, each child's response was assigned a characteristic response type according to methods described by Cairns and Hsu (1978).

Results

Tables 2 and 3 present the confusion matrices indicating the patterns of response of wh-questions for the middle and low SES preschoolers in this study.

Insert Tables 2 and 3 about here

The following represents the order of which wh-words elicited the highest percentage of correct responses in the middle SES group: *who*, *why*, *what*, *where*, *how*, and *when*. The order of highest percentage of correct responses for the low SES group was *who*, *what*, *why*, *where*, *how*, and *when*.

It also appears that in the middle SES group there is less overall confusion in response type especially for the more abstract wh-words *when*, *how*, and *why*. In the low SES group, when a response to *where*, *when*, *how*, and *why* questions was incorrect, it was most often responded to as a *what* question. The low SES group responded to *where*, *when*, *how*, and *why* questions as a *what* question significantly more than the middle SES group.[1]

Table 4 shows the relative type responses for all children. This table indicates where there are significant SES differences in the sophistication of response types between the two groups of children.

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[1] z scores calculated on differences between percentages of low and middle SES scores for a *what* response to *where*, *when*, *how*, and *why* indicated a significance level of $p < .001$, indicating more *what* confusion in low SES.

Insert Table 4 about here

In order to determine significant differences between low and middle SES, z scores were computed on the difference between percentage scores according to a method described by Glass and Stanley (1970, p. 324-326).

Discussion

The data in this study, regarding order of acquisition of comprehension of wh-questions, generally support findings of earlier studies for the middle SES sample of preschool children. The findings of the present study indicate, however, that the order of acquisition may be different for low and middle SES preschoolers relative to the positioning of *why*. Gullo (1981) noted earlier that this may reflect SES differences in language development. Other studies of low SES language development (Blank, Rose, & Berlin, 1978; Tough, 1977) found that low SES children use language less than middle SES children to express cause-effect relationships--a requirement for understanding and answering a *why* question.

Another characteristic of the responses of the low SES sample was to respond to *where, when, how,* and *why* questions with *what* answers. This was not the case with the middle SES sample. It appears that this may be a difference in strategical method employed by the low SES child to answer wh-questions. If you don't know the answer to the question, repeat back one of the nouns in the question, generally the subject or the object of the question. Since the scoring procedure indicated that a *what* answer was credited if a non-human noun response was given, most low SES answers to *where, when, how,* and *why*, if not correct, were credited this way.

Upon examination of the qualitative differences in response type, it was found that in addition to more "response type 1" answers, low SES children answered significantly more *where, how,* and *why* questions with ritualistic responses

("response type 2"), e.g., *where* = "here," *why* = "because," and *how* = "fine" than did middle SES children. The only exception to this was for the *when* questions where the middle SES children answered 32% of the questions as "type 2 responses," while only 18% of the answers in the low SES sample were "type 2 responses." However, for *when* questions 75% of the responses in the low SES group were "type 1 responses." Therefore, the greater number of "type 2 responses" for *when* questions in the middle SES group would indicate a greater sophistication in responding to a *when* question as compared to the low SES group. This supports earlier developmental difference findings between SES groups with regard to the acquisition of the *when* construct found by Gullo (1981).

Examination of Table 4 reveals an interesting phenomenon with regard to the orderliness of the developmental sequence of responses between the two SES groups. As would be predicted from the data of previous studies, Table 4 shows, for the middle SES group, that the majority of earlier developed concepts have response types that are more advanced or equal to the later developing concepts. For example, the middle SES group never exhibit a more advanced response type for *when* when compared to *where*. This does not seem to be the case for the low SES group, however. This finding suggests that for low SES children there may not be a parallel in linguistically decoding and encoding the relevant contexts related to *where*, *when*, *why*, and *how* as there appears to be for the middle SES children.

Finally, Table 4 suggests that for some wh-questions the low SES population is more sophisticated than the middle SES children in response type. This is not as it would appear at first glance. For example, Table 4 indicates that the low SES children answered significantly more *how* questions at a more sophisticated level than *where* questions when compared to the middle SES children (*where* < *how*, M-SES: 22%, L-SES: 40%). Upon examination of the protocols, it was revealed that the more advanced *how* over *where* responses for low SES chil-

dren is reflected in the difference between a type 1 and type 2 response, whereas middle SES children are answering both *where* and *how* questions with type 3 and type 4 responses the majority of the time. This same phenomenon can also be observed when looking at other comparisons of response types between wh-words. This may be further evidence to support the idea that there is not a linguistic parallel in the decoding and encoding of the contexts related to the more advanced wh-word constructs for low SES children.

The educational implications of this study lie in two opposite directions, both over and under estimating what knowledge a child possesses. On the one hand, if a child does not answer a wh-question correctly or at all, the teacher should try to assess whether the child does not possess the requested information or does not understand the wh-word construct. This study further verifies that there are SES differences in children's understanding and answering of wh-questions.

Conversely, if the developmental sequence of responding to questions that Cairns and Hsu (1978) suggest is accurate, what appears to be a correct response to a question may be one that is ritualistic and only is indicative of an awareness of what kind of wh-word requires what kind of general response.

References

Blank, M., Rose, S., & Berlin, L. The language of learning. New York: Grune and Stratton, 1978.

Cairns, H., & Hsu, J. R. Who, why, when, and how: a developmental study. Journal of Child Language, 1978, 5, 477-488.

Glass, G. V., & Stanley, J. C. Statistical methods in education and psychology, Englewood Cliffs, NJ: Prentice-Hall, 1970.

Gullo, D. F. Social class differences in preschool children's comprehension of wh-questions. Child Development, 1981, 52, in press.

Tough, J. The development of meaning. New York: John Wiley and Sons, 1977.

Tyack, D., & Ingram, D. Children's production and comprehension of questions. Journal of Child Language, 1977, 4, 211-224.

Table 1

Stimulus Questions

1.	Where	is the girl jumping?
2.	What	
3.	Where	is the boy helping?
4.	Who	
5.	Where	is the boy running?
6.	Why	
7.	Where	is the boy eating?
8.	How	
9.	Where	is the boy eating?
10.	When	
11.	What	is the dog jumping?
12.	Who	
13.	What	is the cat jumping?
14.	Why	
15.	What	is the boy eating?
16.	How	
17.	What	is the horse jumping?
18.	When	
19.	Who	is the girl helping?
20.	Why	
21.	Who	is the boy helping?
22.	How	
23.	Who	is the dog jumping?
24.	When	
25.	Why	is the girl helping?
26.	How	
27.	Why	is the boy jumping?
28.	When	
29.	How	is the boy eating?
30.	When	

Table 2

Confusion Matrix Indicating Response Patterns of Six Wh-Question Types by All Children in the Middle SES Group (in percentages)[a]

Response Category	Who	What	Where	When	How	Why
Who	*.93*	.03	.02	.00	.00	.01
What	.13	*.81*	.03	.01	.01	.02
Where	.07	.09	*.72*	.04	.04	.02
When	.03	.10	.15	*.65*	.00	.02
How	.09	.06	.05	.01	*.68*	.09
Why	.03	.03	.07	.01	.01	*.84*

[a]Correct responses are italicized.

Table 3

Confusion Matrix Indicating Response Patterns of Six Wh-Question Types by All Children in the Low SES Group (in percentage)[a]

Response Category	Who	What	Where	When	How	Why
Who	*.81*	.07	.04	.00	.03	.03
What	.10	*.71*	.05	.03	.02	.04
Where	.12	.24	*.52*	.02	.05	.05
When	.10	.29	.18	*.28*	.07	.07
How	.08	.19	.07	.00	*.51*	.11
Why	.07	.10	.09	.11	.13	*.56*

[a]Correct responses are italicized.

Table 4

Relative Response Types for All Children

(in percentages)

	M SES	L SES		M SES	L SES
Where > When	.58***	.37	Where > How	.20	.22
Where = When	.42	.52	Where = How	.58**	.38
Where < When	.00***	.10	Where < How	.22**	.40
Where > Why	.22	.25	When > How	.12	.08
Where = Why	.58**	.40	When = How	.32**	.48
Where < Why	.18**	.37	When < How	.57*	.43
When > Why	.07	.08	How > Why	.22*	.33
When = Why	.32	.43	How = Why	.58**	.42
When < Why	.62*	.50	How < Why	.20	.25

> means 'more advanced than.'
< means 'less advanced than.'
* differences between percentages, $p < .10$.
** differences between percentages, $p < .05$.
*** differences between percentages, $p < .01$.